

=> d his

(FILE 'HOME' ENTERED AT 06:58:29 ON 06 DEC 2005)

FILE 'CA' ENTERED AT 06:58:37 ON 06 DEC 2005

L1 69536 S (OPTIM? OR EVALUAT? OR SCREEN? OR DETERMIN? OR IDENTIF? OR ASSESS?
OR EXAMIN? OR MAXIM?) (7A) (PROCESS? OR REACTION OR EXPERIMENT?) (4A)
(CONDITION? OR PARAMETER OR YIELD OR DESIGN?)
L2 11953 S L1 AND(CATALY? OR REACTOR OR MICROREACTOR OR MINIREACTOR)
L3 175 S L2 AND (FACTORIAL OR ARRAY?)
L4 8892 S L1/TI,IT,ST
L5 149 S (L3 AND L4) OR(L3 AND(FACTOR? OR STATIST? OR PLANNING OR
INCREMENT? OR DATABASE)
L6 1519 S L2 AND(FACTOR? OR STATIST? OR PLANNING OR INCREMENT? OR DATABASE)
L7 439 S L4 AND (L6 OR (STATIST? AND (CATALY? OR REACTOR OR MICROREACTOR OR
MINIREACTOR OR DEVELOP? OR REACTION OR PLANNING OR
CHEM?)/TI,IT,ST))
L8 549 S L5,L7
L9 455 S L8 NOT(ENZYM? OR DNA OR RNA OR PEPTIDE OR PROTEIN OR BIOLOG? OR
BLOOD OR DRUG)
L10 342 S L9 NOT PY>2000
L11 5 S L9 AND PATENT/DT AND PY<2003
L12 347 S L10-11
L13 326 S L12 NOT(FERMENT? OR PHOTOGRAPH? OR LITHOG? OR WELD OR COAL OR
RADIOAC?)
L14 301 S L13 NOT(DOWNHOLE OR CURE OR STEEP ASCENT OR COATING OR PLATING OR
EXTRACTION)
L15 247 S L14 NOT(PESTICIDE OR NUCLEAR OR WASTEWATER OR FLAME OR BIPOLAR OR
PHOTOCHEM? OR LIME OR GRAVEL OR TEXTILE)
L16 227 S L15 NOT(POTENTIOMET? OR CLIN? OR GRIND? OR ETCH? OR SEMICONDUCT?
OR OZONE TRANSFER OR DIPOLE OR REFUSE OR DISTILLATION COLUMN OR
FISCHER OR TORCH OR CEMENT OR ELECTRON)
L17 217 S L16 NOT (ELECTROPHOR? OR POLLUT? OR FULLER? OR PHOTOCAT? OR STEEL
COMP)
L18 6 S L17 AND(FEED OR COMPOSITION) (4A) (VARY? OR VARIAB? OR MIX OR
MIXTURE OR MIXING)
L19 49 S L17 AND(GAS OR HETEROGEN? OR PROPENE OR ETHENE OR ETHYLENE OR
PROPYLENE)
L20 40 S L17 AND(FLOW? OR PRESSUR? OR RESIDENCE OR PRACTICAL)
L21 78 S L17 AND(TEMPERATURE OR CONTACT TIME OR SPACE VELOCITY)
L22 112 S L18-21

=> d bib,ab 1-112 122

L22 ANSWER 16 OF 112 CA COPYRIGHT 2005 ACS on STN
AN 128:128586 CA
TI **Optimization** of olefin copolymerization. Effects of **reaction parameters**
on **catalytic** activity and properties
AU Baumhardt-Neto, Ricardo; Galland, Griselda B.; Mauler, Raquel S.;
Quijada, Raul
CS Instituto Quimica, Porto Alegre, 91501, Brazil
SO Polymer Bulletin (Berlin) (1998), 40(1), 103-109
AB The copolymn. of **ethylene** with 1-hexene using Et[Ind]2ZrCl2/MAO as
catalyst was studied by multivariate methods. Three complete **factorial**
designs were performed to study the influence of 1-hexene concn.,

reaction **temp.**, and [Al]/[Zr] ratio on **catalytic** activity, copolymer viscosity, crystallinity, and m.p. Since the [Al]/[Zr] ratio has a small effect on the **catalytic** activity, a fourth design with 1-hexene and **temp.** was developed, giving higher **catalytic** activities. **Temp.** and 1-hexene concn. were the main effects found in the system. A second order effect arising from 1-hexene vs. [Al]/[Zr] ratio was also detected. Polymer viscosity, crystallinity, and m.ps. decreased with 1-hexene concn. Viscosity decreased with **temp.** whereas crystallinity increased when the **temp.** was raised from 30 to 60°.

L22 ANSWER 36 OF 112 CA COPYRIGHT 2005 ACS on STN

AN 120:302472 CA

TI Dynamic method for the **development** of kinetic models for **heterogeneous catalytic gas phase reactions**

AU Kafarov, V. V.; Turek, Fritz

CS Russ. Univ. Chem. Technol., Moscow, Russia

SO Chemie Ingenieur Technik (1994), 66(3), 351-4

LA German

AB A method for model selection and initial parameter evaluation is given and exemplified with the adsorption kinetics in porous **catalysts** applying a flexible system of exptl. **microreactors** (reciprocating piston **reactors**, 5 mL, selective **catalytic** hydrogenation of ethane). Different input functions of **residence** time anal. of these **reactors** were combined and the best combination selected by **statistical** methods. The determinant of the information matrix and the std. deviation of the model parameter are used as evaluation criteria.

L22 ANSWER 42 OF 112 CA COPYRIGHT 2005 ACS on STN

AN 117:195071 CA

TI An **experimental design** for **determining** the **optimum** method of **catalyst** preparation for low **temperature** methanol steam reforming

AU Amphlett, J. C.; Creber, K. A. M.; Davis, J. M.; Mann, R. F.; Peppley, B. A.; Stokes, D. M.

CS Electrochem. Powers Sour. Group, R. Mil. Coll. Canada, Kingston, ON, K7K 5L0, Can.

SO Studies in Surface Science and Catalysis (1992), 73(Prog. Catal.), 343-9

AB Low-**temp.** **catalytic** steam reforming of MeOH was used supplying H-rich **gas** to a solid polymer electrolyte fuel cell. Com. low-**temp.** shift **catalysts** based on CuO-ZnO-Al₂O₃ are suitable for steam reforming of MeOH; however, they are not necessarily the optimum **catalysts** for this purpose. A **statistical** fractional **factorial** approach to optimize a **catalyst** formulation that is specific for steam reforming of MeOH is described.

L22 ANSWER 57 OF 112 CA COPYRIGHT 2005 ACS on STN

AN 102:205942 CA

TI **Process optimization** using computer-aided **experimental design** and data analysis

AU Cawse, James N.; Cooper, Stephen M.

CS Plast. Bus. Group, Gen. Electr. Co., Pittsfield, MA, 01201, USA

SO Polymeric Materials Science and Engineering (1985), 52, 262-3

AB Two software packages, COED and RS/1, useful in the design and anal. of multivariable expts. are described. The COED is used for the selection

of an optimal subset of expts. from the total no. of possibilities and RS/1 is used for manipulating the data, graphics, fitting equations, and performing **statistical** anal. The uses of these packages in the optimization of a continuous reaction to alkylate a phenol on a fixed bed of **catalysts** and in the kinetic studies of a high-temp. esterification are discussed.

L22 ANSWER 61 OF 112 CA COPYRIGHT 2005 ACS on STN

AN 100:141849 CA

TI Thermal degradation of shale oils. 1. Kinetics of vapor phase oil degradation

AU Thakur, Deepak S.; Wilkins, Ebtisam S.; Nuttall, H. Eric

CS Dep. Chem. Nucl. Eng., Univ. New Mexico, Albuquerque, NM, 87131, USA

SO Fuel (1984), 63(3), 401-7

AB As vertical modified underground oil shale retorts have been scaled up and tested, the overall oil yield has declined and is generally lower than that obsd. in an above-ground process. Diminished yields are attributed to a variety of **factors** assocd. with scaleup, such as incomplete rubblization, wide particle size distributions (large blocks of shale), poor **flow** distributions, and increased **residence** times resulting in increased oil degrdn. To study such vapor-phase degrdn. of shale oil, oil produced from a com. underground retort was studied tubular continuous **flow reactor** equipped with on-line **gas** chromatog. for **gas** compn. monitoring. Oil and a combination of **gases** including steam were metered into the preheater and then the vapors passed into a quartz tubular **reactor** in which the **temp.** and **residence** time of the gaseous mixt. were controlled. Complete mass balances were calcd., giving the wt. fraction of oil converted to noncondensable hydrocarbon **gases** and coke. High-temp. thermal degrdn. of shale oil was studied under steady state **flow** conditions (i.e., at 425-625° and 2-10 s **residence** time) in a series of **factorial-designed expts.** to **det.** the effects of retorting variables. Addn. of steam to the carrier **gas** did not reduce oil degrdn. losses but did react with the coke, thus changing the product **gas** compn. and quantity. A 1st-order oil degrdn. rate expression was used to model the rate of oil loss. The calcd. activation energy was 17.3 kcal/mol. Chem. analyses of the product liqs. and **gases** confirmed previously reported findings that the oil loss indexes [alkene-alkane, C₂H₄ [74-85-1]-C₂H₆ [74-84-0], naphthalene [91-20-3]-(C₁₁ + C₁₂), and **gas-coke** ratios] increase with increasing oil degrdn.

L22 ANSWER 65 OF 112 CA COPYRIGHT 2005 ACS on STN

AN 98:75018 CA

TI Dearomatization of a jet fuel fraction on a platinum **catalyst**

AU Mucka, Viliam; Ostrihonova, Alica; Kopernicky, Ivan; Mikula, Oldrich

CS Fac. Nucl. Phys. Eng., Czech Tech. Univ., Prague, 11519/1, Czech.

SO Collection of Czechoslovak Chemical Communications (1982), 47(11), 2858-66

AB A desulfurized jet fuel fraction was dearomatized by hydrogenation over an Al₂O₃-supported Pt **catalyst** (0.65 wt.% Pt). The dearomatization proceeded more readily at lower **temps.**, but at these **temps.** the **catalyst** is more sensitive to poisons. A **factorial expt.** was **designed** to **det.** the **optimum conditions** for the dearomatization. Virtually complete dearomatization was achieved at 245-295°, 1.5-4 MPa H partial **pressure**

and a **space velocity** of 2 h⁻¹. Some phys. and physicochem. properties of the **catalyst** are presented.

L22 ANSWER 78 OF 112 CA COPYRIGHT 2005 ACS on STN

AN 89:80842 CA

TI The **design of experiments** for the **determination** of kinetic **parameters** depending on the type of laboratory **reactors** used

AU Hoffmann, Ulrich; Emig, Gerhard; Mueller, Erwin

CS Inst. Tech. Chem., Friedrich-Alexander Univ., Erlangen, Fed. Rep. Ger.

SO Chemical Engineering Science (1978), 33(3), 404-7

AB The extents to which a certain **reactor** type influences the results of a **statistically designed expt.** are **examd.** for continuous stirred tank and plug-flow tubular **reactors** using the criterion of G. E. P. Box and H. L. Lucas (1959). Relations are given for detg. the optimal mean **residence** times and optimal **temps.** In expts. with the same exptl. error on reactions of >0 order the plug-flow tubular **reactor** is always superior to the continuous stirred tank **reactor** with regard to reliability of parameter ests.

L22 ANSWER 81 OF 112 CA COPYRIGHT 2005 ACS on STN

AN 88:89219 CA

TI Disproportionation of toluene: **process optimization by statistical design of experiments**

AU Rawat, D. S.; Bawa, J. S.; Shanker, Uma; Dabral, R. P.; Bhattacharyya, K. K.

CS Indian Inst. Pet., Dehra Dun, India

SO Indian Journal of Technology (1977), 15(3), 114-18

AB The disproportionation of toluene to benzene and xylenes over a zeolite **catalyst** was planned **statistically** (orthogonal central composite design) in the **temp.** range 440-510, 10-50 kg/cm² **pressure**, **space velocity** (WHSV) 0.58-3.41 and H to toluene molar ratio 4-11. The conversion of toluene was correlated with these process variables by a 2nd degree polynomial, the unknown coeffs. of which were evaluated by the least squares method. The values of optimum conversion at different values of WHSV predicted from the correlation were confirmed by subsequent expts. The model generated contours of conversion which indicate operating variables for a desired level of conversion.

L22 ANSWER 97 OF 112 CA COPYRIGHT 2005 ACS on STN

AN 74:33059 CA

TI **Design of experiments for determining conditions in chemical process development studies**

AU Natarajan, Guruswamy; Banerjee, Pranob K.

CS Hindustan Lever Res. Cent., Bombay, India

SO Indian Chemical Journal (1970), 5(1), 169-80

AB A **statistical** math. method of development, scale up, or optimizing chem. processes is described based on a so-called factorial-design concept in which one factor is kept const. while the others are varied; the factor can be either qual. (batch of material, method of processing) or quant. (**temp.**, **pressure**, etc.). The method is illustrated on a process in which the **temp.**, amt. of reactant, and quality of solvent were examd. in a reaction $R + S \rightarrow T$. The effectiveness of screening of process

variables is discussed.

=> log y

STN INTERNATIONAL LOGOFF AT 08:42:38 ON 06 DEC 2005

=> d his

(FILE 'HOME' ENTERED AT 16:33:49 ON 05 DEC 2005)

FILE 'CA' ENTERED AT 16:33:58 ON 05 DEC 2005

L1 2089 S (PASSIVE OR PASSIVELY OR FIXED) (6A) (FLOW(3A)CONTROL?) OR RESTRICT?
(3A)FLOW

L2 364 S L1 AND (REACTOR OR REACTION OR MICROREACTOR OR BENCH OR MINIREACTOR
OR LABORATORY)

L3 142 S L2 AND (CATALY? OR GAS OR VAPOR)

L4 86 S L1 AND ORIFICE

L5 12 S L4 AND (REACTOR OR REACTION OR MICROREACTOR OR BENCH OR MINIREACTOR
OR LABORATORY)

L6 42 S L4 AND (CATALY? OR GAS OR VAPOR)

L7 11 S L4 AND (ADSORPTION OR MAINTAIN)

L8 106 S L3 NOT(NUCLEAR OR CVD OR VAPOR DEPOSIT?)

L9 156 S L5-8

L10 114 S L9 NOT PY>2000

L11 55 S L9 AND PATENT/DT AND PY<2003

L12 130 S L10-11

=> d bib,ab 1-130 l12

L12 ANSWER 4 OF 130 CA COPYRIGHT 2005 ACS on STN

AN 135:212672 CA

TI Parallel flow process optimization **reactor**

IN Bergh, H. Sam; Engstrom, James R.; Guan, Shenheng; Pinkas, Daniel Meron;
Self, Kyle W.

PA Symyx Technologies, Inc., USA

SO PCT Int. Appl., 177 pp.

PI WO 2001066245 A2 20010913 WO 2001-US7372 20010307

PRAI US 2000-187566P P 20000307

AB Parallel flow **reaction** systems comprising four or more **reaction** channels are disclosed. Distribution systems, and parallel flow **reaction** systems comprising such distribution systems are also disclosed. Specifically, the distribution systems comprise one or more subsystems, including for example, a flow-partitioning subsystem for providing a different flow rate to each of the four or more **reactors**, a pressure-partitioning subsystem for providing a different **reaction** pressure in the **reaction** cavity of each of the four or more **reactors**, and a feed-compn. subsystem for providing a different feed compn. to each of the four or more **reactors**. In preferred embodiments, the one or more subsystems can comprise at least one set of four or more **flow restricting** means, each of the four or more **flow restricting** means having a **flow** resistance that varies relative to other **flow restricting** means in the set.

L12 ANSWER 22 OF 130 CA COPYRIGHT 2005 ACS on STN

AN 131:230338 CA

TI **Gas flow** characterization of **restrictive flow orifice** devices

AU Shrouf, Roger D.; Page, Shane R.
CS Safety Engineering Department, Sandia National Laboratories,
Albuquerque, NM, 87185-1045, USA
SO Sandia National Laboratories [Technical Report] SAND (1997), SAND97-
1670, 1-14
AB A **restrictive flow orifice** (RFO) can be used to limit the uncontrolled
release of system media upon component or line failure in a **gas** handling
system and can thereby enhance the system safety. This report describes
a new RFO product available from the Swagelok Companies and specifies
the **gas** flow characteristics of this device. A family of four different
sizes of RFO devices is documented.

=> log y

STN INTERNATIONAL LOGOFF AT 16:53:18 ON 05 DEC 2005

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	32	("3175968" "3316170" "3602701").PN. OR ("3828171").URPN.	US-PGPUB; USPAT; USOCR	2005/12/06 16:03
2	BRS	L2	34	("2240481" "4213831" "4302292" "4400465" "4608364" "4701440" "4751057" "4780196" "4916212" "4946828" "4959351" "5008241" "5028586" "5028587").PN. OR ("5304354").URPN.	US-PGPUB; USPAT; USOCR	2005/12/06 16:13
3	BRS	L3	1376524	flow	USPAT	2005/12/06 16:19
4	BRS	L4	1988302	(control or controler or controlling or controller or controlling)	USPAT	2005/12/06 16:19
5	BRS	L5	452001	(orifice or capillary or passive or restriction or restrictor or restricter)	USPAT	2005/12/06 16:19
6	BRS	L6	235145	L3 near3 L4	USPAT	2005/12/06 16:19
7	BRS	L7	14345	L6 with L5	USPAT	2005/12/06 16:20
8	BRS	L8	136	L7 same (reactor or microreactor)	USPAT	2005/12/06 16:20
9	BRS	L9	96	L8 not nuclear	USPAT	2005/12/06 16:20
10	BRS	L10	793	L7 and (reactor or microreactor)	USPAT	2005/12/06 16:20
11	BRS	L11	591	L10 not nuclear	USPAT	2005/12/06 16:21
12	BRS	L12	495	L11 not 18	USPAT	2005/12/06 16:21
13	BRS	L13	20	("3096157" "3285701" "3304159" "3460909" "3518059" "3607073").PN. OR ("3753653").URPN.	US-PGPUB; USPAT; USOCR	2005/12/06 16:38